PHILCO MODEL 020 VOLT-OHMMETER

RANGES:

A-C volts:
D-C volts:
Output volts: } 0—10, 30, 100, 300, 1000.

Ohms: 0—150, 15,000, 1.5 megohms, 15 megohms.

Current (D.C.):
0—10, 100 milliamperes, 0—200 microamperes.

Millivolts (D.C.): 0—250.

CONTROLS:

All functions and ranges are controlled by a single rotary selector switch. Since this instrument has the unique feature of measuring A.C. and D.C. on the same scales, a two-position switch is provided for changing from A-C to D-C readings. A third control is used for adjusting the zero setting of the ohmmeter. This control also contains the switch that turns on the rectifier tubes.

BATTERY AND TUBE REPLACEMENTS:

A 1.5-volt Philco "D" cell is used in the instrument to operate the two lower resistance ranges (150 and 15,000 ohms). When it is no longer possible to obtain a zero reading on these scales with the test leads shorted, this cell should be replaced. The rectifier system uses two Philco tubes, a type XXD and a type 7C6. If there is any occasion to replace the type XXD tube it may be necessary to make a slight readjustment of the rheostat which is accessible through a hole in the same side of the case as the power cord. This adjustment affects the A-C voltage scales only, and can be reset when measuring a known source of A-C voltage.

LINE CORD CONNECTION:

This cord supplies power to the rectifier tubes for the A-C ranges and the two higher resistance ranges (1.5 and 15 megohms). It should be connected to a 110-volt outlet (either A.C. or D.C.) but when connected to a D-C outlet the plug should be inserted with the proper polarity so that the A-C and higher resistance ranges function normally. If the cord is to be left connected to an outlet at all times, as when the instrument is used in the shop, the switch on the "0 Ohms Adj" Control should be turned off whenever the instrument is not in use. The line cord connection is not required for D-C voltage or current readings, nor for the two lower resistance scales (150 and 15,000 ohms).

D-C VOLTAGE MEASUREMENTS:

Insert the test leads in the pin jacks marked "Common" and "Volts, MA, Ohms." Turn the selector switch to the scale desired.

D-C MILLIAMPERES:

With the test leads connected as above, turn the selector switch to the milliampere scale desired.

D-C MILLIVOLTS:

Insert the test leads in the pin jacks marked "Common" and "Millivolts." When using the millivolt scale the selector switch can be in any voltage position.

D-C MICROAMPERES:

Connect as for D-C Millivolts. Use second scale from the top and multiply readings by 20.

A-C VOLTS:

Insert the test leads in the pin jacks marked "Common" and "Volts, MA, Ohms." Turn the switch on the "0 Ohms Adj." control to the "ON" position and allow time for the rectifier tubes in the instrument to become heated before making A-C voltage measurements. Turn the selector switch to the scale desired.

OUTPUT VOLTS:

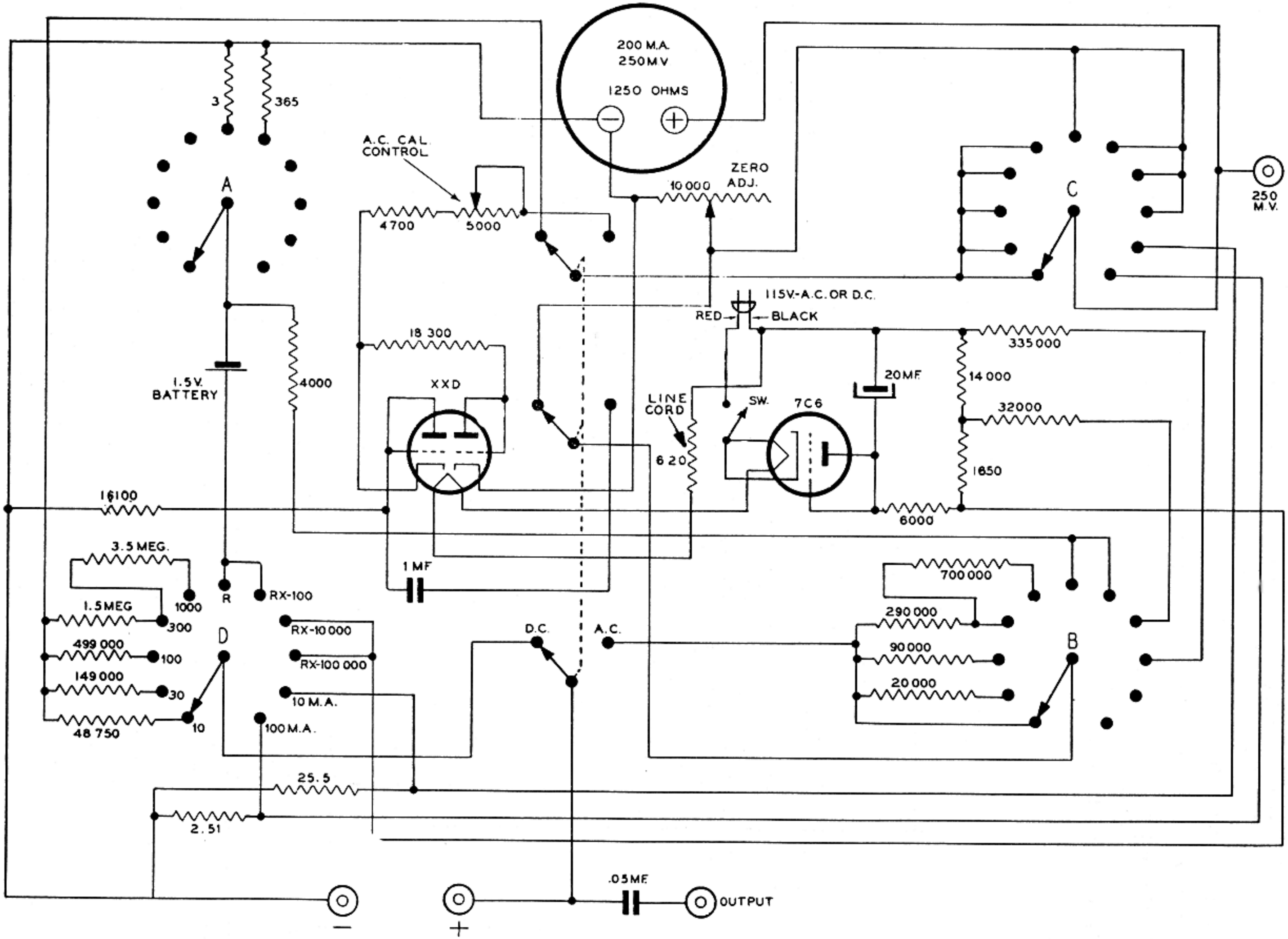
Insert the test leads in the pin jacks marked "Common" and "Output", and proceed as in measuring A-C volts.

RESISTANCE MEASUREMENTS:

Insert the test leads in the pin jacks marked "Common" and "Volts, MA, Ohms." Turn the selector switch to the resistance scale desired. Short the test prods together and adjust the "0 Ohms Adj." control for zero indication on the meter. The line cord should be plugged into the electrical outlet when using the two higher resistance scales (1.5 and 15 megohms).

CAUTION

Before using the R x 10,000 and R x 100,000 ranges, make sure that the apparatus under test is not grounded or connected to a power line.



PHILCO MODEL 020 VOLT-OHMMETER (SCHEMATIC DIAGRAM)